



Solaris/SPARC Applications Running on Linux/Itanium-Based Systems

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Agenda

- Transitive Background
 - Company Overview and Projects
- Enterprise Datacenter Evolution
 - Comparative Lifecycles
 - Resource Utilization Efficiencies
 - Server Workload Mobility
- QuickTransit Architecture
 - Benefits of Dynamic Binary Translation
 - Removing the Hardware|Software Dependency

Transitive Mission

**Every software application runs
on every hardware platform**

Transitive Corporation - Overview

Company Background

- Leading provider of software transportability solutions across multiple hardware platforms
- More than 6 million desktop and server users worldwide
- Breakthrough transportability technology developed at UK's Manchester University
- Unique, patented architecture
- World's largest team of dynamic binary translation experts
- Global company with headquarters in Silicon Valley; other offices in Manchester, London, and New York

Partners



Alliances



Awards



Solution Choice of Leading Computer OEMs



Desktop

sgi

Workstations/HPC



High-End Servers



Volume Servers



QuickTransit



IRIX[®]
MIPS[®]

QuickTransit



QuickTransit



QuickTransit



TRANSITIVE[®]

Today's Data Center



- Many physical servers
- Many server types
- Many provisioning methods
- Many management and monitoring tools

Tomorrow's Data Center



- Industry-standard architecture
- Fully virtualized
- Energy-efficient
- Faster, cheaper, smaller
- Unified management for
 - Provisioning
 - Monitoring
 - Load balancing
 - Failover
 - etc...

Hardware vs Software: Mismatched Life Spans

- **Fact: Enterprise Software Outlives Hardware**
 - Enterprise Software:
 - Typical useful life could be decades
 - Functionality upgrades driven by business needs
 - Enterprise Hardware
 - Costs fully depreciated over 3 to 5 years
 - Functionality upgrades driven by competition and Moore's Law
 - Modular design (racks, blades) make physical replacement easy
 - Obsolete in 7 years
- However, hardware upgrades force re-writing of software

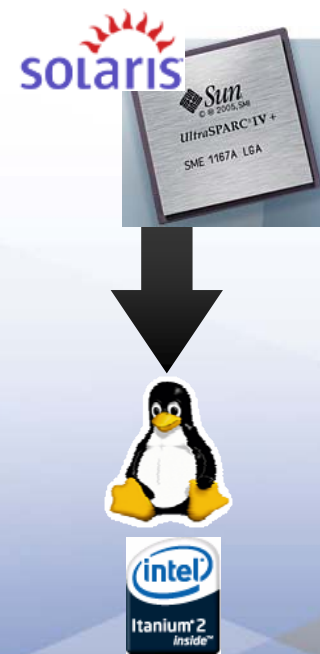
Datacenter Migration Obstacles



QuickTransit® for Solaris/SPARC-to-Linux/Itanium

- QuickTransit software runs Solaris/SPARC application binaries on Linux/Itanium platforms unchanged
 - Custom developed applications
 - Legacy ISV applications
 - Including scripts and development tools
- Increased performance, enables consolidation
 - Apps run up to 4x faster on current Linux platforms compared to original legacy SPARC server
- Complete interoperability
 - Enables apps to runs on virtual or physical servers
 - Translated apps work with native Linux apps/databases
- Based on proven, enterprise-ready technology
 - Linux/x86 version has been shipping since 2006
 - Linux/Itanium version is in final beta – shipping in Q3

QuickTransit



Data Center Migration Alternatives

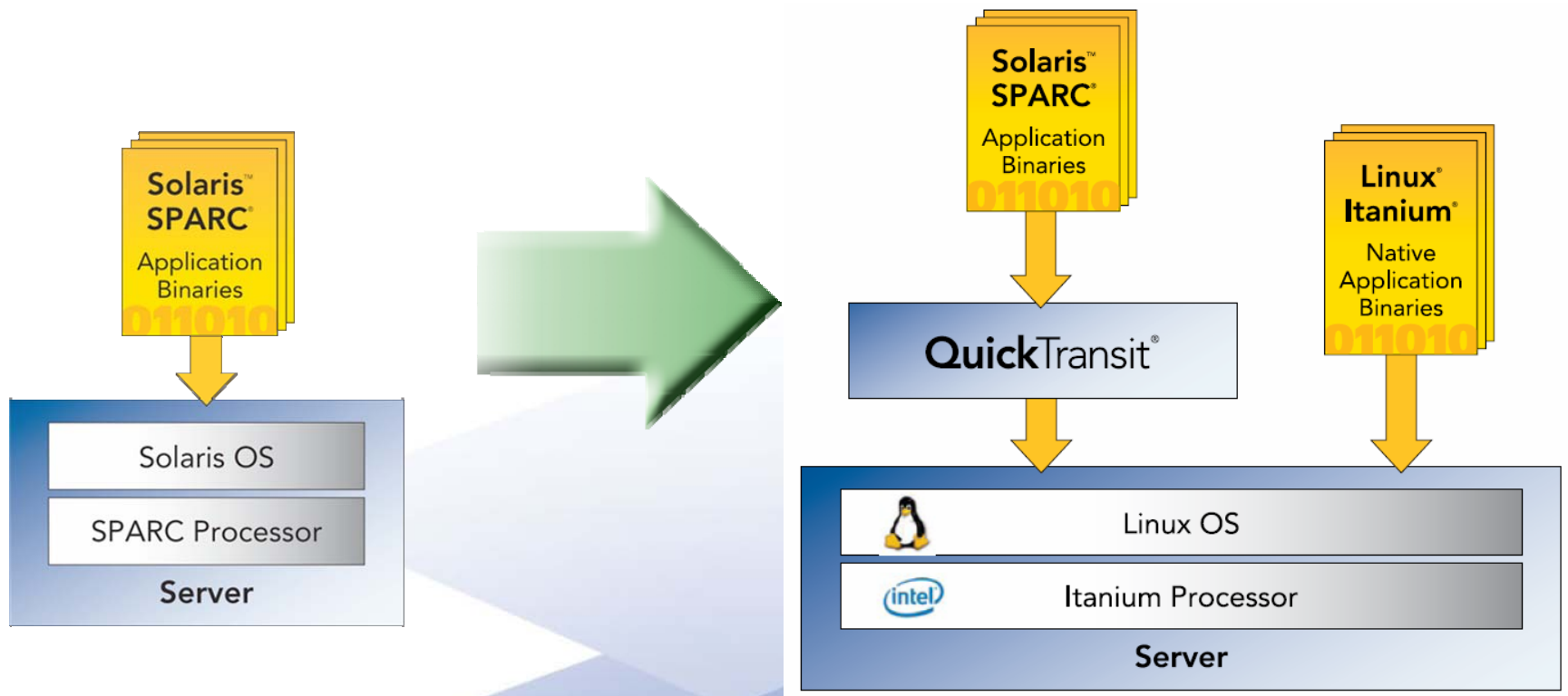
- 1. Purchase replacement applications
 - Expensive, wasteful, time-consuming, redundant
 - Disruptive to business processes and end users
- 2. Port applications (re-write/recompile for new platforms)
 - Expensive, time-consuming, disruptive
 - Development resources taken from more strategic initiatives
- 3. Do nothing (procrastinate)
 - Hardware risk increases over time (support, spare parts, etc.)
 - Results in underpowered systems, wasted space/power/cooling

Why Migrate from Outdated Hardware?

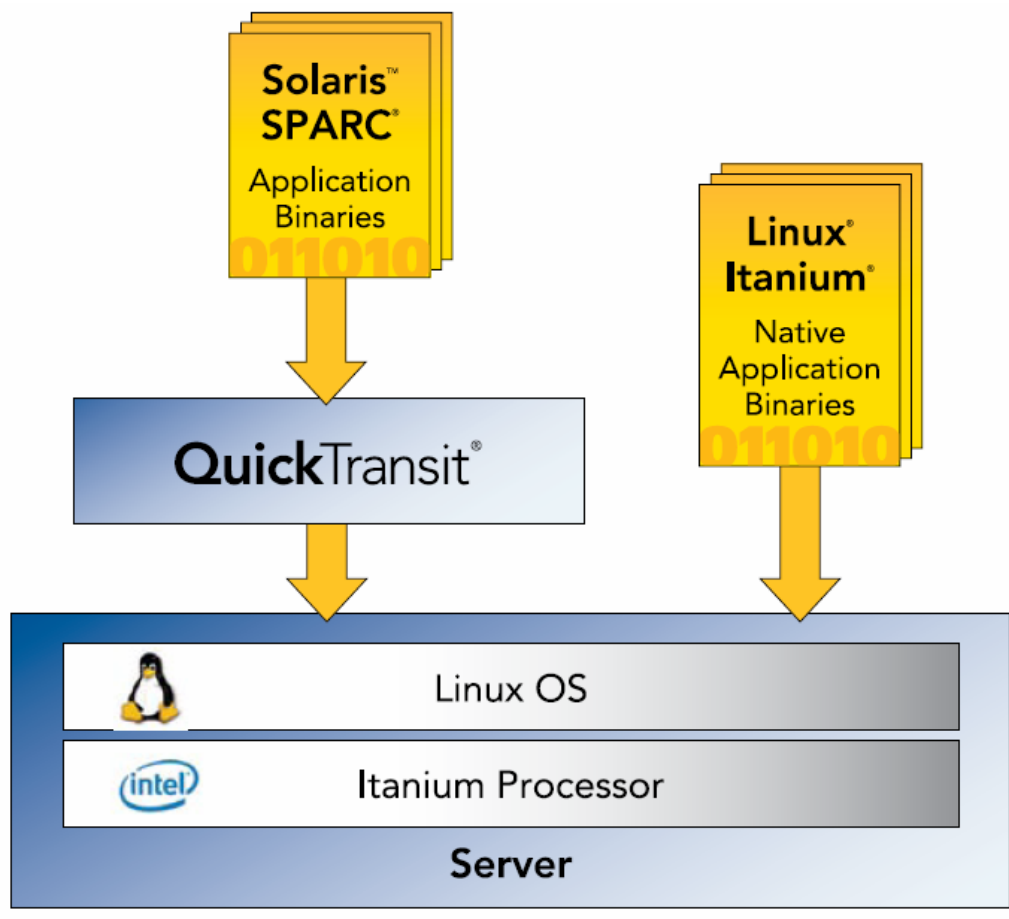
- Why the time to migrate from legacy hardware is NOW ...
 - Maintenance risks are increasing over time
 - Decreasing availability of replacement parts
 - Declining maintenance/repair expertise
 - Adverse impacts on limited datacenter resources
 - Inefficient use of available power and cooling
 - Inefficient use of datacenter and rack space
 - Older systems deliver fewer transactions per Watt
 - Underpowered systems impact productivity
 - Users waste time waiting for system response
 - Legacy hardware wastes IT budget and resources
 - Expensive to run, expensive to maintain

The Other Alternative: QuickTransit®

- Solaris™/SPARC® applications run on Linux®/Itanium® servers without any source or binary changes



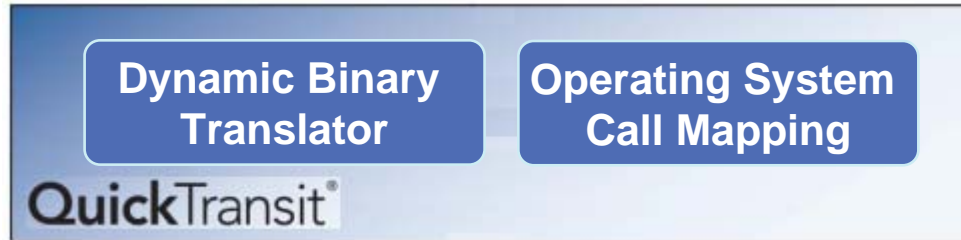
QuickTransit: How it Works



1. Reads Solaris/SPARC application binary instructions
2. Decodes and optimizes frequently-used portions
3. Generates equivalent Linux/Itanium binary instructions on-the-fly
4. Provides equivalent OS functions

– * QuickTransit is a dynamic translator solution, and not a static emulator/interpreter technology

QuickTransit: How it Works



Allows software written for one CPU and OS combination to run on another CPU and OS without any source code or binary changes

- 1. Legacy CPU instructions are translated to equivalent operations on new host platform
- 2. Operating system calls are mapped to equivalent functionality on new host operating system

QuickTransit Compatibility

- Full Solaris environment provided
 - Provides Solaris command line tools
 - Solaris scripts work unmodified
- Support for interactive Solaris shells
 - 'runsol' command to translate Solaris shell
- Full separation of Solaris and Linux system files
- Sharing of site-specific directories

QuickTransit Compatibility

- Support for 32-bit & 64-bit Solaris/SPARC applications
- Support for full UltraSPARC instruction set
 - V8, V8+, V9
- Support for Solaris 2.6 & above
- Support for complete Solaris environment
 - Solaris scripts work unmodified
- Support for RedHat AS4 and Novell SLES 9 and 10
 - Or any kernel later than 2.6.9

Application Support

- All Solaris user mode applications are supported
 - Full support for standard Solaris package management tools
- System tools are replaced by Linux equivalents
 - User administration
 - Network configuration
 - File system configuration
 - Storage Management
 - Device drivers

Transparency

- Full interoperability between Linux and Solaris applications
- Application administration/installation is identical to Solaris
- Target Linux System is treated and administered like any other Linux system

Integration With Native Linux Apps

- Solaris applications and Linux applications can be integrated
 - E.g. Solaris application uses a Linux DB
- Any applications that can integrate when running on different machines on a network will work
 - Socket or network communication
 - Shared memory only supported between translated applications (Due to endianness differences)
- All data stays in Solaris native format
 - No file conversions necessary
 - Files can be shared with other Solaris machines

FULL FUNCTIONALITY



Everything Just Works

**Full Application
Functionality**

**Interoperable with
other Applications**



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FULL TRANSPARENCY

*Easy Systems
Administration*

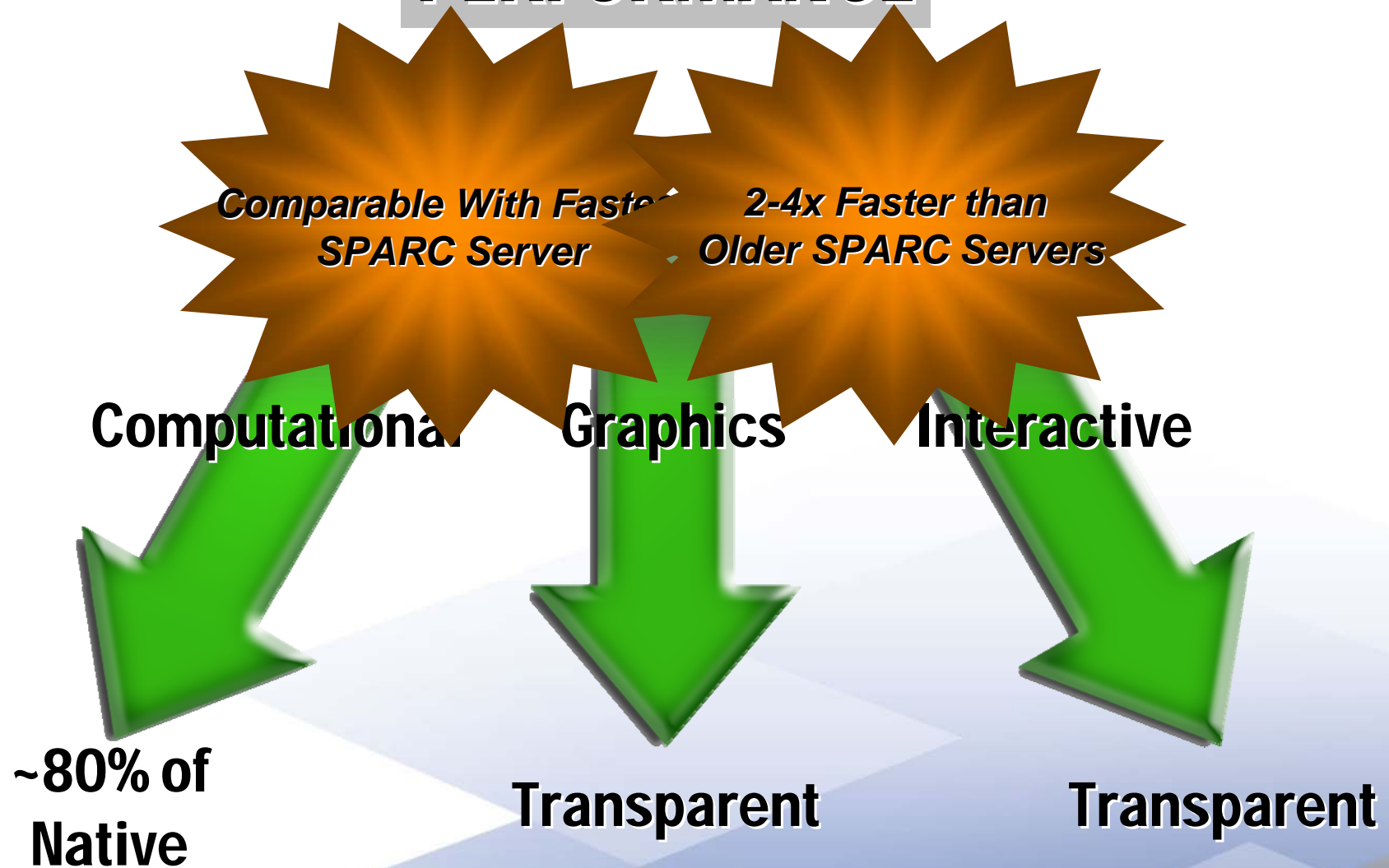
*Users Don't
Know It's There*

Installation

Management

Invocation

PERFORMANCE



QuickTransit Demonstration

Summary: QuickTransit[®] Benefits

- Reduces TCO and improves IT infrastructure ROI
 - Take quicker advantage of industry-standard hardware
 - Higher system utilization with virtualization
 - Free up datacenter space, power/cooling and lower maintenance costs
- Accelerates datacenter migrations and consolidation projects
 - Decommission legacy SPARC systems, and remove hardware risk
 - Remove time, cost and risk from datacenter migration projects
- Internal system administrators and software teams can:
 - Maintain applications and environment as they did before – no change
 - Focus on adding value/new functionality rather than porting applications

Next Steps

- Sign up as a field tester
- Try out QuickTransit for Solaris/SPARC-to-Linux/Itanium
 - Migrate native Solaris/SPARC applications
 - Integrate these with native Linux/Itanium applications
 - Send Transitive your feedback

Thank you